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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/663,174 | 09/15/2003 | John Santhoff | 30287-111 | 2822 |
| 44279 | 7590 | 06/02/2005 | EXAMINER | |
| PULSE-LINK, INC. 1969 KELLOGG AVENUE CARLSBAD, CA 92008 | | | JAGANNATHAN, MELANIE | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2666 | |

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/663,174 | SANTHOFF ET AL. | |
| | Examiner | Art Unit | |
| | Melanie Jagannathan | 2666 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>9/15/2003</u> | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Claim Objections

1. Claim 28 is objected to because of the following informalities: on line 1, after “wherein the”, “a” should be deleted. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 6-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The word “may” used to describe range of time duration is vague and lacks positive recitation.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-6, 8-9, 11-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Webster et al. US 6,754,195.

Regarding claims 1, 3, 8-9, the claimed generating a first data frame, constructed to transmit at a first data rate that ranges between about one kilobit per second to five megabits per second is disclosed by Barker preamble (Figure 3, element 303) transmitted at 1 Mbps, a Barker header (element 305) transmitted at 1 or 2 Mbps.

Regarding claims 1, 4-5, 9, the claimed generating a second data frame, constructed to transmit data at a second data rate that ranges between 5 Mbps to 1 Gbps or at a rate selected from a group consisting of 25 Mbps, 50 Mbps, 100 Mbps, 200 Mbps, 400 Mbps, 480 Mbps, 500 Mbps and 1 Gbps is disclosed by OFDM symbols (Figure 3, element 307) incorporating payload data transmitted at any selected data rate from among rates of 24, 36, 48, or 54 Mbps. See column 7, lines 23-32. The claimed transmitting both the first and second data frames is disclosed by mixed signal receiver (Figure 2, element 201) configured to receive mixed signal packet including Barker preamble, Barker header and OFDM symbols (Figure 3, element 301).

Regarding claim 2, the claimed first and second time frames comprise a plurality of time bins, with each time bin capable of receiving an ultra-wideband pulse is disclosed by 802.11 OFDM and QPSK symbols in mixed signal packet (Figure 3, element 301) and wireless LAN devices operating in 2.4 GHz band. See column 5, lines 49-57.

Regarding claim 6, the claimed time duration may range from about one microsecond to about one millisecond is disclosed by mixed signal packet has sample rate 20 MHz which inversely would amount to around one millisecond for time duration. See column 7, lines 23-37.

Regarding claim 11, the claimed first transceiver structured to communicate at a first data rate and second transceiver structured to communicate at a second data rate is disclosed by

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mixed signal devices (Figure 1, elements 103-109) communicating with each other at different or higher data rates from each other. See column 6, lines 1-40.

Regarding claims 12-13, the claimed first data rate between about 1 Kbps to 5Mbps and second data rate is between 5Mbps to about 1Gbps is disclosed by Barker preamble (Figure 3, element 303) transmitted at 1 Mbps, a Barker header (element 305) transmitted at 1 or 2 Mbps and OFDM symbols (Figure 3, element 307) incorporating payload data transmitted at any selected data rate from among rates of 24, 36, 48, or 54 Mbps. See column 7, lines 23-32.

Regarding claims 14-15, the claimed first transceiver communicates at first data rate and second transceiver kept off until desired is disclosed by devices including single-carrier receiver (Figure 2, element 207) and multi-carrier receiver (Figure 2, element 209) where switch (element 205) initially provides received signal to single-carrier receiver and if header examination determines it is a mixed packet (as described above) the switch provides it to the multi-carrier receiver. See column 6, lines 44-67, column 9, lines 20-58.

Regarding claims 16-17,19, 23-24, the claimed at least two ultra-wideband communication devices, each device structured to transmit and receive using at least two data rates and master transceiver is disclosed by mixed signal devices (Figure 1, elements 103-109), operating in 2.4 GHz band, communicating with each other at different or higher data rates from each other. See column 5, lines 49-67, column 6, lines 1-40, column 9, lines 20-58. Any one of these devices could take master role to communicate with two other devices at two different data rates.

Regarding claims 18, 24, 27, the claimed determining a communication data rate capability of devices, device transmit request to communicate using only one of data rates is

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disclosed by Webster et al. incorporating by reference dual packet configuration of U.S. patent application 09/586,571. The dual mode packet configuration allows 802.11b in 2.4 GHz band to coexist with devices communicating at different or greater rates afforded by OFDM. An OFDM mode bit in the header is used by target device for indication of OFDM mode use by another device. See column 1, lines 52-64.

Regarding claim 20, the claimed time duration may range from about ten picoseconds to about one millisecond is disclosed by mixed signal packet has sample rate 20 MHz which inversely would amount to around one millisecond for time duration. See column 7, lines 23-37.

Regarding claim 21, the claimed OFDM signals is disclosed by devices transmitting OFDM symbols (Figure 3, element 307) incorporating payload data transmitted at any selected data rate from among rates of 24, 36, 48, or 54 Mbps. See column 7, lines 23-32.

Regarding claim 22, the claimed low data rate transceiver communicates and high data rate transceiver is disclosed by devices including single-carrier receiver (Figure 2, element 207) and multi-carrier receiver (Figure 2, element 209) where switch (element 205) initially provides received signal to single-carrier receiver and if header examination determines it is a mixed packet (as described above) the switch provides it to the multi-carrier receiver. See column 6, lines 44-67, column 9, lines 20-58.

Regarding claim 25, the claimed master transceiver transmits beacon signal containing geographic location information is disclosed by mixed packet signal including preamble with power and timing information associated with the multi-path medium which the signal was propagated from the WLAN device. See column 6, lines 44-55, column 7, lines 10-22.

Regarding claim 26, the claimed two data rates selected from group consisting of 1 Kbps, 5 Mbps, 25 Mbps, 50 Mbps, 100 Mbps, 200 Mbps, 400 Mbps, 480 Mbps, 500 Mbps and 1 Gbps is disclosed by Barker preamble (Figure 3, element 303) transmitted at 1 Mbps, a Barker header (element 305) transmitted at 1 or 2 Mbps and OFDM symbols (Figure 3, element 307) incorporating payload data transmitted at any selected data rate from among rates of 24, 36, 48, or 54 Mbps. See column 7, lines 23-32.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 7, 10, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Webster et al. US 6,754,195.

Regarding claim 7, the specification discloses symbol slots comprise plurality of time bins each sized, for example, 400 picoseconds. Webster et al. discloses 2.4 GHz WLAN devices transmitting first and second data frames comprising QPSK and OFDM symbols teaching the claimed limitation of frames each comprising a plurality of time bins capable of receiving ultra-wideband pulses.

Webster et al. does not disclose the ultra-wideband pulse may range in duration from about 10 picoseconds to about one nanosecond. Webster et al. discloses mixed signal packet has sample rate 20 MHz which inversely would amount to around one millisecond for time duration. See column 7, lines 23-37. At the time the invention was made it would have been obvious to a person of ordinary skill in the art to modify Webster et al. with time duration of 10 picoseconds to about one nanosecond. One of ordinary skill in the art would be motivated to do this so mixed packet signal with higher data rate allows different rate devices to coexist. See column 1, lines 35-51, column 6, lines 1-43.

Regarding claim 10, Webster et al. discloses generating first and second data frames to transmit at first and second data rates and to transmit both the first and second data frames with Barker preamble (Figure 3, element 303) transmitted at 1 Mbps, a Barker header (element 305) transmitted at 1 or 2 Mbps and OFDM symbols (Figure 3, element 307) incorporating payload data transmitted at any selected data rate from among rates of 24, 36, 48, or 54 Mbps and mixed signal receiver (Figure 2, element 201) configured to receive mixed signal packet including Barker preamble, Barker header and OFDM symbols (Figure 3, element 301). See column 7, lines 23-32.

Webster et al. does not disclose computer program product with set of computer readable instructions to perform above steps.

At the time the invention was made it would have been obvious to translate steps of generating of the first and second data frames at first and second data rates and transmitting both frames into code for use by the WLAN devices of Webster et al. One of ordinary skill in the art would be motivated to do this for the efficiency due to an automated system.

Regarding claim 28, Webster et al. discloses all of the limitations of the claim except for master transceiver transmitting shut-down signal to ultra-wideband device. At the time the invention was made it would have been obvious to a person of ordinary skill in the art to modify Webster et al.'s WLAN devices transmit shut-down signal as part of mixed signal packet. One of ordinary skill in the art would be motivated to do this to conserve power of device.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ryan et al. US 6,898,198 discloses selecting data rate of a wireless network link according to error vector magnitude.

Rios US 6,873,611 discloses multiprotocol WLAN devices.

Sugar et al. 6,526,264 discloses wideband multiprotocol wireless transceiver.

Eberle et al. US 6,760,300 disclose high-speed wireless OFDM transceiver.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie Jagannathan whose telephone number is 571-272-3163.

The examiner can normally be reached on Monday-Friday from 8:00 a.m.-4:30 p.m..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MJ

A handwritten signature in black ink, appearing to read "Frank Duong", with a stylized, cursive script.

FRANK DUONG
PRIMARY EXAMINER